AMENDMENTS TO THE CLAIMS

27.   (Currently Amended) A method for classifying plant embryos according to their quantifiable characteristics ~~quality~~ comprising:

(a)   developing a classification model by

(i)   acquiring absorption, transmittance or reflectance spectral raw data of reference samples of plant embryos or any portion thereof ~~from plant embryos~~ of known ~~embryo quality~~ quantifiable characteristics;

(ii)   performing a data analysis by applying one or more classification algorithms to the spectral raw data, the data analysis resulting in development of a classification model for classifying plant embryos by ~~embryo quality~~ their quantifiable characteristics;

(b)   acquiring absorption, transmittance or reflectance spectral raw data of a plant embryo or any portion thereof ~~from a plant embryo~~ of unknown ~~embryo quality~~ quantifiable characteristics; and

(c)   applying the developed classification model to the spectral raw data of step (b) in order to classify the ~~quality of the~~ plant embryo of unknown ~~embryo quality~~ quantifiable characteristics according to its presumed quantifiable characteristics.

28.   (Previously presented) A method according to Claim 27, wherein the absorption, transmittance or reflectance spectral raw data acquired in step (a)(i) is preprocessed using one or more preprocessing algorithms before step (a)(ii); the absorption, transmittance or reflectance spectral raw data acquired in step (b) is preprocessed using one or more preprocessing algorithms; and step (c) is carried out using the preprocessed absorption, transmittance or reflectance spectral raw data.

29.   (Previously presented)   A method according to Claim 28, wherein the preprocessing algorithm reduces noise and adjusts for drift and diffuse light scatter.

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30. (Previously presented) A method according to Claim 28, wherein the preprocessing algorithm reduces the amount of absorption, transmittance or reflectance spectral raw data yet retains substantially all of the spectral information.

31. (Previously presented) A method according to Claim 28, wherein the preprocessing algorithm calculates metrics.

32. (Previously presented) A method according to Claim 27, wherein the absorption, transmittance or reflectance spectral raw data is acquired from more than one view of the plant embryo or portion thereof.

33. (Previously presented) A method according to Claim 27, wherein the absorption, transmittance or reflectance spectral raw data is acquired from one or more embryo regions selected from the group consisting of cotyledon, hypocotyl and radicle.

34. (Currently amended) A method according to Claim 27, wherein the quantifiable characteristics comprise plant embryo quality is morphology.

35. (Currently amended) A method according to Claim 27, wherein the quantifiable characteristics comprise plant embryo quality is embryo conversion potential.

36. (Previously presented) A method according to Claim 27, wherein the plant embryo is a plant somatic embryo.

37. (Previously presented) A method according to Claim 27, wherein the plant is a tree.

38. (Previously presented) A method according to Claim 37, wherein the tree is a member of the order *Coniferales*.

39. (Previously presented) A method according to Claim 37, wherein the tree is a member of the family *Pinaceae*.

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40.   (Previously presented)   A method according to Claim 37, wherein the tree is selected from the group consisting of genera *Pseudotsuga* and *Pinus*.